

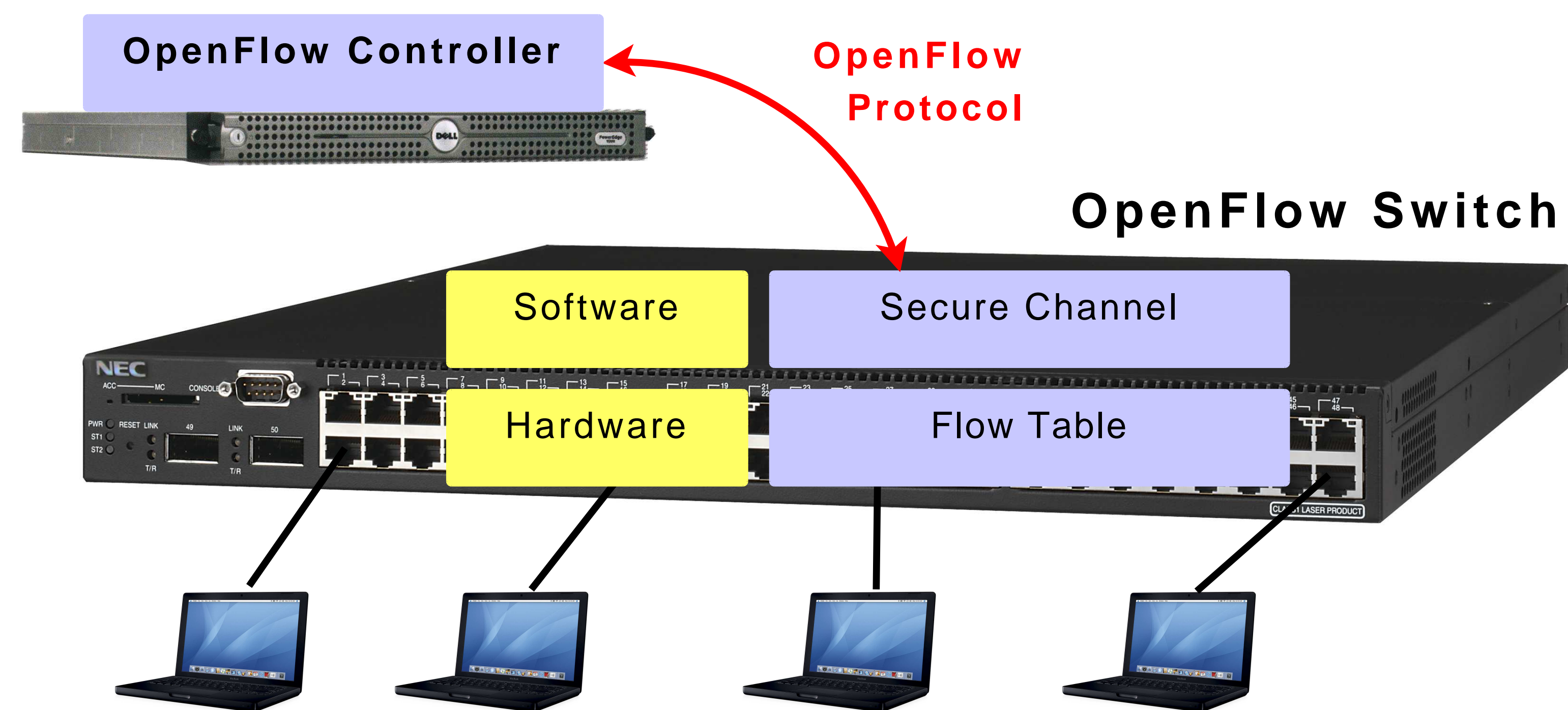
OpenRoads: Empowering Research in Mobile Network

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What is OpenFlow?

Goals

- ▶ Enable innovation in campus and enterprise networks
- ▶ Create open platform that we can **all** use and innovate in



Basics

- Separation of **Control** from **Datapath**
- ▶ **Control:** Remote, open-source controller
 - ▶ **Datapath:** Simple flow-based switches

Approach

We are adding OpenFlow as a feature to existing commercial switches and routers.

- ▶ Publish OpenFlow Protocol Specification
- ▶ Deploy at Stanford: Production networks in CS and EE buildings
- ▶ Deploy on other campuses
- ▶ Encourage community to add new functionality and experiments

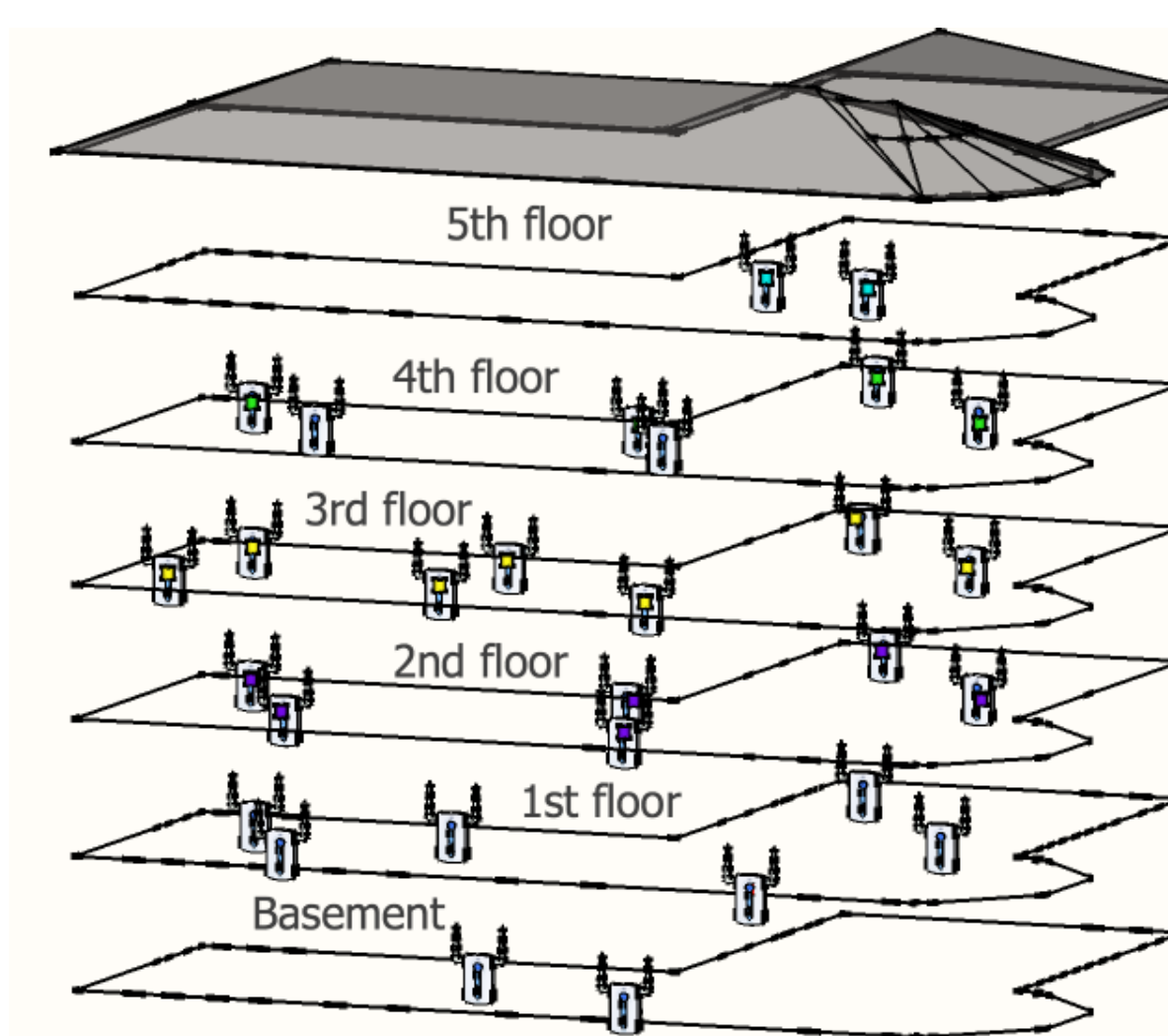
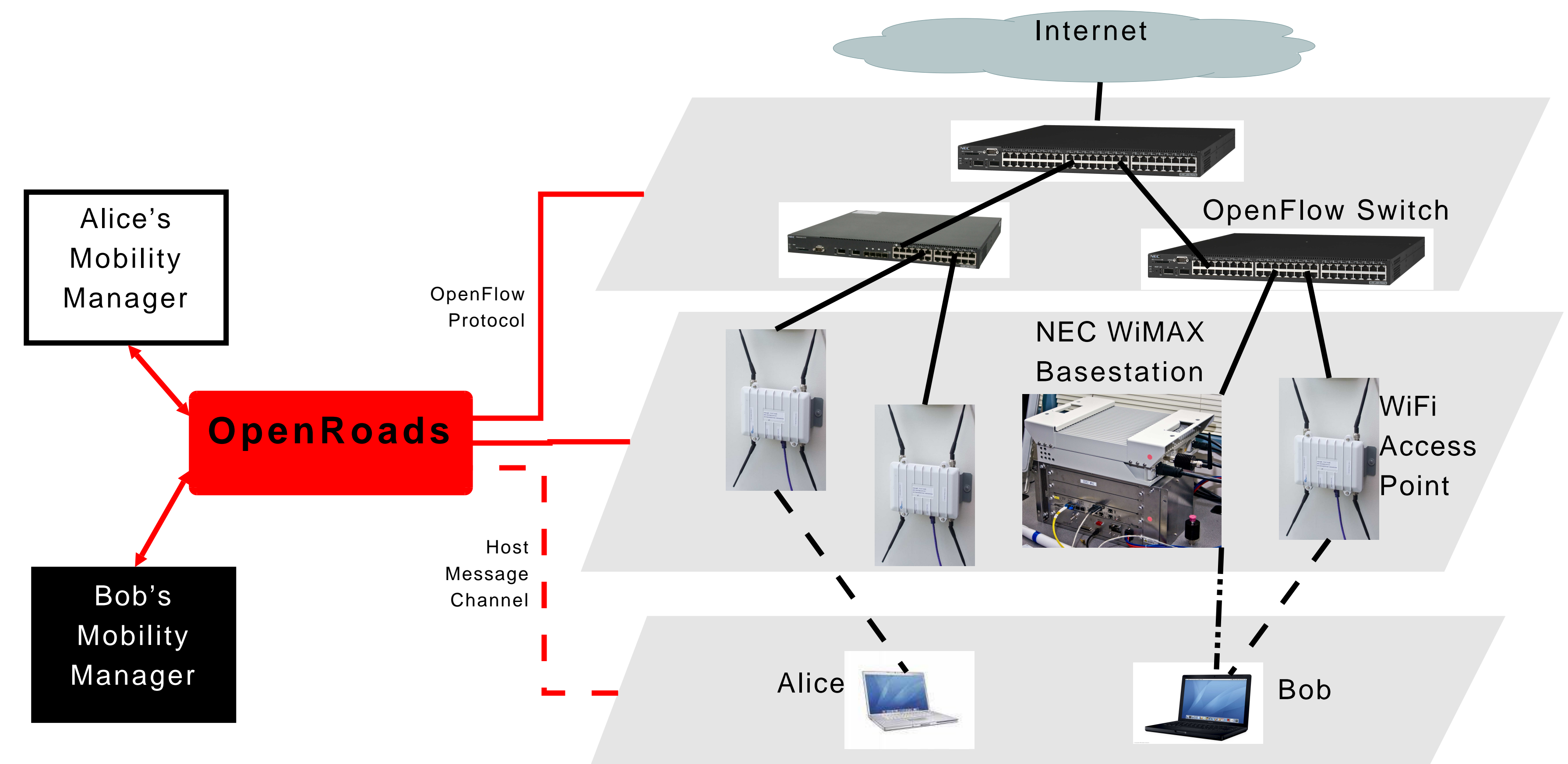
OpenFlow enables researchers to run experimental protocols in the networks they use every day. OpenFlow is based on an Ethernet switch, with an internal flow-table, and a standardized interface to add and remove flow entries. Our goal is to encourage networking vendors to add OpenFlow to their switch products for deployment in college campus backbones and wiring closets.

OpenRoads: Platform for Mobile Research

OpenRoads

We want to bring **OpenFlow** to as many wireless researchers in the world as possible. Therefore, we are building a platform **OpenRoads** so they can easily

- ▶ Build mobility managers
- ▶ Run several in the network concurrently
- ▶ Do handoff between different wireless technologies
- ▶ Create a virtual service provider that is independent of the infrastructure



What we have done

- ▶ Building-wide deployment
 - ▶ 4 switches
 - ▶ 30 WiFi APs
 - ▶ WiMAX base station
- ▶ Created 4 mobility managers
 - ▶ Achieved redirection of flow in 12 lines
- ▶ Handover between WiFi and WiMAX



<http://OpenFlowSwitch.org>

